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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Precipitation stable isotopic signatures of tropical cyclones in Metropolitan Manila, Philippines show significant negative isotopic excursions" *by* Dominik Jackisch et al.

Anonymous Referee #3

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In this manuscript, daily measurements of the isotopic composition of precipitation in Manila are presented that have been performed over a period of about 19 months. Events with strong isotopic depletion are linked to passages of tropical cyclones. Unfortunately, in my opinion, the paper is very limited in terms of scientific content (data analysis and interpretation). I have a hard time identifying novel results or conclusions that may merit publication in a peer-reviewed paper. I thus cannot recommend this study for publication in NHESS.

Specific comments:

- The only conclusion that really follows from the analyses presented in this manuscript is that the precipitation associated with tropical cyclones, in particular those passing relatively close to measurement site, is isotopically more depleted than precipitation from other cloud systems. However, this conclusion is not novel. Already in the late 1990ies, Lawrence and others obtained similar results based on more detailed measurements and analyses. I cannot think of any reason why this very general result should be particularly different or noteworthy for TCs in the Philippines. Moreover, this conclusion and the analyses in the manuscript correspond well with the isotopic amount effect (see next point), which has been widely discussed in the literature since Dansgaard's work in the 1960ies.

- A characteristic property of tropical precipitation is that larger precipitation amounts are associated with more depleted isotope ratios (amount effect). This is mentioned in passing in the introduction of this manuscript, but not discussed in detail. Nevertheless, it can explain the results presented here: As TCs typically lead to large precipitation amounts, it is to be expected that they are also associated with lower isotope ratios. This is hinted at in the manuscript, but not shown explicitly (e.g., by plotting precipitation amount against isotope ratio). Along the same line, precipitation amount typically declines with distance from the TC center (beyond the eyewall), as does isotopic depletion. As mentioned before, the fact that the results and interpretation do not go beyond this variant of the well-known amount effect strongly compromises the novelty of the study.

- A major motivation for the authors appears to come from potential applications of isotope data from proxy archives for paleoclimate reconstructions. However, I don't see how their data could add to the present practice of using tropical data for reconstructions of precipitation amount, based on the amount effect described above. There are many vague statements in the manuscript that, at least for me, are difficult to follow. For example, how could changes in TC intensity, frequency or distance from the proxy site be distinguished from single isotope time series? Why should an isotope time se-

ries only represent changes in TC precipitation and not, for instance, changes in the precipitation amount in non-TC time periods? If the idea should be to learn something about such more detailed atmospheric processes (related, e.g., to TCs) by combining proxy records from different locations, then this approach should also be demonstrated with the help of a contemporary study combining data distributed in space, and not just from a single location.

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